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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,774	05/26/2005	Tatsuru Shirafuji	MOR-4	5144

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EXAMINER	
FORD, KENISHA V	
ART UNIT	PAPER NUMBER
2812	
MAIL DATE	DELIVERY MODE
04/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,774	SHIRAFUJI ET AL.	
	Examiner	Art Unit	
	KENISHA V. FORD	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9-12* is/are allowed.

6)☒ Claim(s) *1-8 and 13-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Amendment filed on 30 December 2007. Currently, claims 1-20 are pending.

Claim Objections

1. Claim 13 is objected to because of the following informalities: "characterized by including r introducing..." Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, 6, 13 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshino et al. (US 2004/0006249 A1) in view of Mak et al. (2006/0040507 A1).

Regarding claim **1** and **13**, Hoshino et al. discloses a method for manufacturing a fluorocarbon film which includes introducing a mixed gas comprising a first carbon fluoride

gas and a second carbon fluoride gas on a substrate placed inside a chamber (pg. 3, para. 30; pg. 4, para. 35; pg. 8, para. 171, lines 1-3) and depositing a fluorocarbon film on said substrate (pg. 8, para. 172, lines 3-9). The recitations, "A method for manufacturing a fluorocarbon film wherein a specific inductive capacity is within a range of 2 or less comprising" and "A method for manufacturing a fluorocarbon film which is used as interlayer insulation films for semiconductor devices characterized by introducing a mixed gas comprising" have not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self--contained description of the structure not depending for completeness upon the introductory clause Kropa v Roble, 88 USPQ 478 (CCPA 195 1). Also regarding claim 13, Hoshino does not explicitly state that the fluorocarbon film is used as an interlayer insulation film for a semiconductor device however, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d - 164 7 (1987).

Hoshino et al. does not teach the formation of voids in the fluorocarbon film by removing volatile components.

However, Mak et al. discloses the forming of voids in the fluorocarbon film by selectively removing volatile components contained in said fluorocarbon film (pg. 6, para. 66-67).

Therefore, it would have been obvious to one of ordinary skill of the art at the time the invention was made to combine the teachings of Mak et al. with the method of Hoshino

et al. to form a porous carbon-doped silica film fluorocarbon residue where its presence is undesirable (pg. 6, para. 54, lines 47-49).

Regarding claim **6** and **18**, Hoshino et al. discloses a method wherein the step for forming voids includes heating the fluorocarbon film (pg. 7, para. 165).

5. Claims 2-4, 8, 14-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshino et al. and Mak et al. as applied to claims 1 and 13 above, and further in view of Kobayashi et al. (US 2006/0264059 A1).

Regarding claim **2** and **14**, Kobayashi et al. teaches that the carbon fluoride compound used for the gas has a carbon number between 2 to 7 (pg. 5, para. 66, lines 1-5) which is included in the desired ranges 4-5 and 6-12 carbon atoms.

Regarding claim **3** and **15**, Kobayashi et al. teaches that the first carbon fluoride gas is octafluorocyclopentene (pg. 5, para. 66, lines 16-19).

Regarding claim **4** and **16**, Kobayashi et al. teaches that the second carbon fluoride gas is hexafluorobenzene (pg. 5, para. 66, lines 21-27).

Regarding claim **8** and **20**, based on the definition of high and low volatility given in the specification (pg. 5, para. 98), Koyabashi et al. discloses a method wherein the first carbon fluoride gas is octafluorocyclopentene and of high volatility and the second carbon fluoride gas is hexafluorobenzene and of low volatility (pg. 5, para. 98).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Kobayashi et al. with those of Hoshino et al. and Mak et al. to manufacture a fluorocarbon film created by combining two carbon fluoride gases in order to enhance the thermal stability of the film (pg. 4, para. 53, lines 17-22).

6. Claim **7** and **19** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshino et al. and Mak et al. as applied to claim 13 above, and further in view of Tsai et al. (US 2004/00161946 A1).

Tsai et al. discloses a plasma chamber that has at least one plasma source that is used to generate plasma energy (pg. 3, para. 29-31).

Therefore, it would have been obvious at the time the invention was made to combine the teachings of Tsai et al. with the method of Hoshino and Mak in order to generate plasma inside the chamber so that the entire process can be performed in the reaction chamber in order to control the pressure (pg. 3, para. 28, lines 1-3).

Response to Arguments

7. Applicant's arguments, see ***Remarks p.8-9***, filed 12/31/07, with respect to the rejection(s) of claim(s) 1-8 under Hoshino et al. have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Mak et al.

Allowable Subject Matter

8. Claims 5 and 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenisha V. Ford whose telephone number is (571) 271-3328. The examiner can normally be reached Monday-Thursday 7:00 a.m.-4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's acting supervisors: Walter Lindsay, Jr. (571) 272-1674 or Scott Geyer (571) 272-1958. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KVF
/Walter L. Lindsay, Jr./

Primary Examiner, Art Unit 2812